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EXAMINER	
NGUYEN, JOSEPH D	
ART UNIT	PAPER NUMBER
2683	6

DATE MAILED: 01/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/873,449	FAN, JOHN	
	Examiner	Art Unit	
	Joseph D Nguyen	2683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 June 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rich (5,940,452) in view of Andrews et al. (6,646,615).

Regarding claim 1, Rich discloses a method for wirelessly transmitting data between a base transceiver station and a subscriber unit (abstract, fig. 1), the base transceiver station comprising a plurality of transmit antennae (abstract, #804 and #806 fig. 8), the method comprising:

a) generating control signals (col. 5 lines 17-58) to configure the base transceiver station to transmit selected data streams to a corresponding subscriber unit on an assigned channel of a multiple access protocol (col. 5 line 65 thru col. 6 line 40);

b) transmitting in response to the control signals and in a spatially separate fashion (col. 8 lines 27-37, and col. 18 line 56 thru col. 19 line 3), the selected data

streams on the assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40); and

c) utilizing co-located dipole antennae at the subscriber unit to receive the selected data streams (#114, 116 fig. 1). However, Rich does not specifically disclose utilizing electric dipole and magnetic dipole antenna at the subscriber unit.

Andrews et al. teaches utilizing co-located electric dipole and magnetic dipole antenna at the subscriber unit (abstract, col. 9 lines 6-28). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Rich system with the teaching of Andrews et al. of electric and magnetic dipole antennas in order to improve fading performance or to increase the capacity of the communication channel in a scattering environment.

Regarding claim 2, Andrews et al. further discloses the method of claim 1 wherein each electric dipole antennas has a different (multiple) polarization (col. 1 lines 32-40, col. 9 lines 6-28).

Regarding claim 3, Andrews et al. further discloses the method of claim 1 wherein each magnetic dipole antenna has a different polarization (col. 1 lines 32-40, col. 9 lines 6-28).

Regarding claim 4, Andrews et al. further discloses the method of claim 1 wherein the electric dipole antennae comprise 3 electric dipole antennae (col. 4 line 44 thru col. 5 line 13), and the magnetic dipole antennae comprise 3 magnetic dipole antennae (col. 4 line 44 thru col. 5 line 13).

Regarding claim 5, Andrews et al. further discloses the method of claim 4 wherein the 3 electric dipole antennae have 3 different polarizations (col. 4 line 44 thru col. 5 line 13, and col. 8 lines 6-28) and the 3 magnetic dipole antennae have 3 different polarizations (col. 4 line 44 thru col. 5 line 13, and col. 8 lines 6-28).

Regarding claim 6, Andrews et al. further discloses the method of claim 5 wherein the data streams are transmitted via a scattering channel (abstract).

Regarding claim 7, Rich further discloses the method of claim 1 wherein the subscriber unit comprises a palm sized device (cellular radiotelephone subscriber unit is well known in the art that it is about palm sized) (abstract, #102 fig. 1).

Regarding claim 8, Rich further discloses the method of claim 7, wherein the subscriber unit comprise dipole antenna. However, Rich does not specifically disclose the subscriber unit wherein the electric dipole antennae comprise 3 electric dipole antennae and the magnetic dipole antennae comprise 3 magnetic dipole antennae.

Andrews et al. teaches the subscriber unit wherein the electric dipole antennae comprise 3 electric dipole antennae and the magnetic dipole antennae comprise 3 magnetic dipole antennae (col. 4 line 44 thru col. 5 line 13). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Rich system with the teaching of Andrews et al. of subscriber unit comprise 3 electric and 3 magnetic dipole antennas in order to improve fading performance or to increase the capacity of the communication channel in a scattering environment.

Regarding claim 9, Andrews et al. further discloses the method of claim 8 wherein the 3 electric dipole antennae have 3 different polarizations (col. 4 line 44 thru col. 5 line 13, and col. 8 lines 6-28) and the 3 magnetic dipole antennae have 3 different polarizations (col. 4 line 44 thru col. 5 line 13, and col. 8 lines 6-28).

Regarding claim 10, Andrews at al. further discloses the method of claim 9 wherein the data streams are transmitted via a scattering channel (abstract).

Regarding claim 11, Rich discloses a method for wirelessly receiving data at a base transceiver station from a subscriber unit (abstract, fig. 1), the base transceiver station comprising a plurality of antennae (#804 and #806 fig. 8), the method comprising:

a) utilizing co-located dipole antenna at the subscriber unit to transmit selected data stream on an assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40),

b) generating control signals to configure the base transceiver station to receive the selected data streams from the subscriber unit on the assigned channel of a multiple access protocol (col. 5 lines 17-58); and

c) receiving in response to the control signals the selected data streams on the assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40). However, Rich does not specifically disclose utilizing co-located electric dipole antennae at the subscriber unit.

Andrews et al. teaches utilizing co-located electric dipole antenna at the subscriber unit (abstract, col. 9 lines 6-28). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Rich system with the teaching of Andrews et al. of electric dipole antennas in order to improve fading performance or to increase the capacity of the communication channel in a scattering environment.

Regarding claim 12, this claim is rejected for the same reason as set forth in claim 2.

Regarding claim 13, this claim is rejected for the same reason as set forth in claim 4.

Regarding claim 14, this claim is rejected for the same reason as set forth in claim 5.

Regarding claim 15, this claim is rejected for the same reason as set forth in claim 6.

Regarding claim 16, this claim is rejected for the same reason as set forth in claim 7.

Regarding claim 17, this claim is rejected for the same reason as set forth in claim 8.

Regarding claim 18, this claim is rejected for the same reason as set forth in claim 9.

Regarding claim 19, this claim is rejected for the same reason as set forth in claim 10.

Regarding claim 20, Rich discloses a system for wirelessly transmitting data between a base transceiver station and a subscriber unit (abstract, fig. 1), the base transceiver station comprising a plurality of transmit antennae (#804 and 806 fig. 8), the system comprising:

a) means for generating control signals to configure the base transceiver station to transmit selected data streams to a corresponding subscriber unit on an assigned channel of a multiple access protocol (col. 5 lines 17-58);

b) means for transmitting in response to the control signals and in a spatially separate fashion (abstract, col. 8 lines 27-37, and col. 18 line 56 thru col. 19 line 3), the selected data streams on the assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40); and

c) means for utilizing co-located dipole antennae at the subscriber unit to receive the selected data streams (#114, 116 fig. 1). However, Rich does not specifically disclose means for utilizing electric dipole and magnetic dipole antenna at the subscriber unit.

Andrews et al. teaches means for utilizing co-located electric dipole and magnetic dipole antenna at the subscriber unit (abstract, col. 9 lines 6-28). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Rich system with the teaching of Andrews et al. of means for electric and

magnetic dipole antennas at the subscriber unit in order to improve fading performance or to increase the capacity of the communication channel in a scattering environment.

Regarding claim 21, this claim is rejected for the same reason as set forth in claim 2.

Regarding claim 22, this claim is rejected for the same reason as set forth in claim 3.

Regarding claim 23, this claim is rejected for the same reason as set forth in claim 4.

Regarding claim 24, this claim is rejected for the same reason as set forth in claim 5.

Regarding claim 25, this claim is rejected for the same reason as set forth in claim 6.

Regarding claim 26, this claim is rejected for the same reason as set forth in claim 7.

Regarding claim 27, this claim is rejected for the same reason as set forth in claim 8.

Regarding claim 28, this claim is rejected for the same reason as set forth in claim 9.

Regarding claim 29, this claim is rejected for the same reason as set forth in claim 10.

Regarding claim 30, Rich discloses a method for wirelessly receiving data at a base transceiver station from a subscriber unit (abstract, fig. 1), the base transceiver station comprising a plurality of antennae (#804 and #806 fig. 8), the method comprising:

a) means for utilizing co-located dipole antenna at the subscriber unit to transmit selected data stream on an assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40),

b) means for generating control signals to configure the base transceiver station to receive the selected data streams from the subscriber unit on the assigned channel of a multiple access protocol (col. 5 lines 17-58); and

c) means for receiving in response to the control signals the selected data streams on the assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40).

However, Rich does not specifically disclose means for utilizing co-located electric dipole antennae at the subscriber unit.

Andrews et al. teaches means for utilizing co-located electric dipole antenna at the subscriber unit (abstract, col. 9 lines 6-28). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Rich system with the

teaching of Andrews et al. of means for utilizing co-located electric dipole antennas in order to improve fading performance or to increase the capacity of the communication channel in a scattering environment.

Regarding claim 31, this claim is rejected for the same reason as set forth in claim 2.

Regarding claim 32, this claim is rejected for the same reason as set forth in claim 4.

Regarding claim 33, this claim is rejected for the same reason as set forth in claim 5.

Regarding claim 34, this claim is rejected for the same reason as set forth in claim 6.

Regarding claim 35, this claim is rejected for the same reason as set forth in claim 7.

Regarding claim 36, this claim is rejected for the same reason as set forth in claim 8.

Regarding claim 37, this claim is rejected for the same reason as set forth in claim 9.

Regarding claim 38, this claim is rejected for the same reason as set forth in claim 10.

Regarding claim 39, Rich discloses a method for wirelessly transmitting data between a base transceiver station and a subscriber unit (abstract, fig. 1), the base transceiver station comprising a plurality of transmit antennae (abstract, #804 and #806 fig. 8), the method comprising:

a) generating control signals (col. 5 lines 17-58) to configure the base transceiver station to transmit selected data streams to a corresponding subscriber unit on an assigned channel of a multiple access protocol (col. 5 line 65 thru col. 6 line 40);

b) transmitting in response to the control signals and in a spatially separate fashion (col. 8 lines 27-37, and col. 18 line 56 thru col. 19 line 3), the selected data streams on the assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40); and

c) utilizing 2 antennas (#114, #116 fig. 1) at the subscriber unit to receive the selected data streams wherein the subscriber unit comprises a palm-sized device (#102 fig. 1 is the radio subscriber unit, it is well known in the art that it is about a palm sized) (#102 fig. 1). However, Rich does not specifically disclose utilizing 6 co-located antennae comprise 3 electric dipole antennae and 3 magnetic dipole antennae wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole antennae have 3 different polarizations.

Andrews et al. teaches utilizing 6 co-located antennae at subscriber unit (fig. 2, col. 3 line 62 thru col. 4 line 8) comprise 3 electric dipole antennae (col. 4 line 44 thru col. 5 line 13) and 3 magnetic dipole antennae (col. 4 line 44 thru col. 5 line 13).

wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole antennae have 3 different polarizations (col. 4 line 44 thru col. 5 line 13, and col. 8 lines 6-28). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Rich system with the teaching of Andrews et al. of 6 antennae with 3 electric and 3 magnetic dipole antennas and 3 different polarizations in order to improve fading performance or to increase the capacity of the communication channel in a scattering environment.

Regarding claim 40, Rich disclose a method for wirelessly receiving data at a base transceiver station from a subscriber unit (abstract, fig. 1), the base transceiver station comprising a plurality of antennae (#804 and #806 fig. 8), the method comprising:

a) utilizing 2 co-located dipole antennae at the subscriber unit (#114, and #116 fig. 1) to transmit selected data streams on an assigned channel of a multiple access protocol (col. 5 line 65 thru col. 6 line 40), wherein the subscriber unit comprises a palm-sized device (cellular radiotelephone unit) (abstract, #102 fig. 8);

b) generating control signals to configure the base transceiver station to receive the selected data streams from the subscriber unit on the assigned channel of a multiple access protocol (col. 5 line 17 thru col. 6 line 40); and

c) receiving in response to the control signals the selected data streams on the assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40). However, Rich does not specifically disclose wherein the assigned channel comprises a

scattering channel, and the 3 co-located antennae comprise 3 electric dipole antennae, wherein the 3 electric dipole antennae have 3 different polarizations.

Andrews et al. teaches wherein the assigned channel comprises a scattering channel (abstract, fig. 3), and the 3 co-located antennae comprise 3 electric dipole antennae, wherein the 3 electric dipole antennae have 3 different polarizations (fig. 4, col. 4 line 44 thru col. 5 line 13, and col. 8 lines 6-28). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Rich system with the teaching of Andrews et al. of 3 co-located antennas with 3 electric dipole antennas have 3 different polarizations in order to improve fading performance or to increase the capacity of the communication channel in a scattering environment.

Regarding claim 41, Rich discloses a system for wirelessly transmitting data between a base transceiver station and a subscriber unit (abstract, fig. 1), the base transceiver station comprising a plurality of transmit antennae (#804 and #806 fig. 8), the system comprising:

a) means for generating control signals to configure the base transceiver station to transmit selected data streams to a corresponding subscriber unit on an assigned channel of a multiple access protocol (col. 5 line 17 thru col. 6 line 40), wherein the assigned channel comprises the spread-spectrum multiple-access digital communications that creates channels (col. 6 lines 15-32);

b) means for transmitting in response to the control signals and in a spatially separate fashion (col. 8 lines 27-37, and col. 18 line 56 thru col. 19 line 3), the selected

data streams on the assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40); and

c) means for utilizing 2 co-located antennae at the subscriber unit (#114, and #116 fig. 1) to receive the selected data streams wherein the subscriber unit comprises a palm-sized device (the cellular radiotelephone unit) (abstract, #102 fig. 1). However, Rich does not specifically disclose the subscriber unit comprise 6 co-located antennae comprise 3 electric dipole antennae and 3 magnetic dipole antennae wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole antennae have 3 different polarizations.

Andrews et al. teaches wherein the assigned channel comprises a scattering channel (abstract) and means for utilizing 6 co-located antennae at subscriber unit (fig. 2, col. 3 line 62 thru col. 4 line 8) comprise 3 electric dipole antennae (col. 4 line 44 thru col. 5 line 13) and 3 magnetic dipole antennae (col. 4 line 44 thru col. 5 line 13). wherein the 3 electric dipole antennae have 3 different polarizations and the 3 magnetic dipole antennae have 3 different polarizations (col. 4 line 44 thru col. 5 line 13, and col. 8 lines 6-28). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Rich system with the teaching of Andrews et al. of scattering channel and means for utilizing 6 antennas with 3 electric and 3 magnetic dipole antennas and 3 different polarizations in order to improve fading performance or to increase the capacity of the communication channel in a scattering environment.

Regarding claim 42, Rich disclose a method for wirelessly receiving data at a base transceiver station from a subscriber unit (abstract, fig. 1), the base transceiver station comprising a plurality of antennae (#804 and #806 fig. 8), the method comprising:

a) means for utilizing 2 co-located dipole antennae at the subscriber unit (#114, and #116 fig. 1) to transmit selected data streams on an assigned channel of a multiple access protocol (col. 5 line 65 thru col. 6 line 40), wherein the assigned channel comprises the spread-spectrum multiple-access digital communications that creates channels (col. 6 lines 15-32) wherein the subscriber unit comprises a palm-sized device (cellular radiotelephone subscriber) (abstract, #102 fig. 1);

b) means for generating control signals to configure the base transceiver station to receive the selected data streams from the subscriber unit on the assigned channel of a multiple access protocol (col. 5 line 17 thru col. 6 line 40); and

c) means for receiving in response to the control signals the selected data streams on the assigned channel of the multiple access protocol (col. 5 line 65 thru col. 6 line 40). However, Rich does not specifically disclose means for utilizing 3 co-located antennae at the subscriber unit comprise 3 electric dipole antennae, wherein the 3 electric dipole antennae have 3 different polarizations.

Andrews et al. teaches wherein the assigned channel comprises a scattering channel (abstract, fig. 3), and the 3 co-located antennae comprise 3 electric dipole antennae, wherein the 3 electric dipole antennae have 3 different polarizations (fig. 4,

col. 4 line 44 thru col. 5 line 13, and col. 8 lines 6-28). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Rich system with the teaching of Andrews et al. of scattering channel and means for utilizing 3 co-located antennas with 3 electric dipole antennas have 3 different polarizations in order to improve fading performance or to increase the capacity of the communication channel in a scattering environment.

3. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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Or faxed to:

703 308-9051, (for formal communication intended for entry)

Or:

(703) 305-9509 (for informal or draft communications, please label "PROPOSED" OR "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA. Sixth floor (Receptionist).

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D Nguyen whose telephone number is (703) 605-1301. The examiner can normally be reached on 7:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on (703) 308-5318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Joseph Nguyen

Dec. 22, 2003

WILLIAM TROST
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